

4.0 MITIGATION STRATEGY

4.1 Hazard Mitigation Goals

The following Multi-Hazard mitigation goals objectives are IDHS'S response to its legal responsibility in fulfilling natural and man-made hazard mitigation planning. The intent of this plan is to introduce and examine hazard mitigation ideas and recommendations. IDHS is also committed to seeking funds to fulfill the plan's recommendations and to reduce or eliminate loss of life and economic damages in future disasters. Successful implementation of this plan should reduce the threat of specific hazards by limiting the damage and loss they inflict. This Mitigation Plan reflects a commitment on the part of the state to improve its overall emergency management operations to prevent a recurrence of the damages and losses experienced during this decade.

The fundamental mission in hazard mitigation is to safeguard the health, safety, and life of individuals and protect private and public property. The objectives stated below are the methods of implementation for some basic hazard mitigation goals. Important goals for the state include:

- enabling residents to take action for themselves by arming them with information that will help protect them in a disaster
- enabling communities to prepare for future disasters through building awareness of the need to incorporate hazard mitigation plans and programs into community plans, to exercise teamwork of community, state, and local entities in hazard mitigation planning
- to provide training for those who would work to implement hazard mitigation in the community

For the purpose of simplicity the Mitigation Measures and Funding sources for each measure are summarized within the text box for every goal and project. In doing so, each project to accomplish the State's mitigation goals, and objectives have possible funding source identified. The Projects are organized whenever applicable or possible on a hazard basis to make the State's priorities for each significant hazard easily identified. Projects identified will expand as more communities develop their local plans thereby identifying their priorities and objectives.

Although this plan deals primarily with projects to be funded under the federal government through FEMA and other disaster agencies, the mitigation division is cognizant of the funding available through the private sector. State staff encourages locals to look for private grant funding and partnerships with local industry and businesses. In the past, locals have worked with lending institutions

to provide low or discounted loans to do mitigation projects on individual structures. The mitigation division will continue to develop private resources for funding of projects through grants and endowment funds. The Eli Lily Endowment Fund has long been a contributor to local projects.

Overarching Statewide goals listed in the introduction to this section are generic and are universally applicable to all mitigation efforts. For the 2008 update, the Planning Team reviewed the more specific goals and it was determined that the majority of previously identified more specific goals are still statewide goals. Goals 9b and 13 were added and several timelines were changed to reflect the ongoing nature of the projects.

GOAL #1

Project: Develop an effective public awareness program for the natural hazards that Indiana is most likely to experience.

Lead Agency: IDHS

Coordinating Agencies: Local Emergency Management, USFWS, USACE, FEMA, USGS, IDNR, Silver Jackets, NWS

Possible Funding Sources: IDHS, FEMA

Timeline: ongoing

OBJECTIVE

Develop a Mitigation category on the Indiana Department of Homeland Security web site, featuring a "Hazard of the Quarter" detailing mitigation strategy for local communities and the general public. Work with local emergency management to investigate other avenues to educate the public, to include local planning efforts, hazard flipchart home references. Explore and utilize a multi agency approach to public education and outreach efforts, maximizing on the potential to reach various audiences throughout the year. Based on successes of other programs, IDHS will explore the utilizations of Public Service Announcements (PSA's) and trailers before movies and other public gatherings.

GOAL #2

Project: Promote economic development consistent with floodplain management, earthquake, and tornado guidelines.

Lead Agency: IDHS

Coordinating Agencies: Local Emergency Management, USFWS, USACE, FEMA, EDA, IDNR, NOAA, NWS, USGS, State HUD agency

Possible Funding Sources: HUD, Indiana Housing & Finance Authority, Indiana Dept. Of Commerce

Timeline: Ongoing

OBJECTIVE

Work with local emergency management, mayors, city managers, county officials, and the Indiana chapter of the APA to educate planning officials on the need to develop and adopt a community master plan that includes disaster mitigation planning principles, flood reduction program, and a public awareness program that advises a community of the hazards that affect their community and the need to mitigate them.

GOAL #3

Project: Use Pre-Disaster Mitigation program to promote recognition of the value of hazard mitigation to public safety and the welfare of the population.

Lead Agency: IDHS

Coordinating Agencies: Local Emergency Management, USFWS, USACE, FEMA, HUD, USGS

Possible Funding Sources: PDM & PDMC

Timeline: Ongoing

OBJECTIVE

Use The Pre-Disaster Mitigation program as a way of promoting the recognition of communities that have instituted successful mitigation plans and programs in order to promote duplication of these successful programs in other communities in the state. Establish uniform application and formalized selection criteria for nominating candidates for Pre-Disaster Mitigation program selection. Tie this project to goals 1 & 2, integrating Pre-Disaster Mitigation program where possible into strategies for public awareness of natural and man-made hazards and promotion of economic development consistent with natural hazard guidelines.

GOAL #4

Project: Encourage scientific study of natural hazards and the development of data to support mitigation strategies for those hazards that are a threat to Indiana.

Lead Agency: IDHS

Coordinating Agencies: IDNR, Indiana Geological Survey, USGS, CUSEC, NWS, USACE

Possible Funding Sources: IDHS, HMTAP, HMGP, USGS Cooperative Program, local sources

Timeline: Ongoing

OBJECTIVE

Continue undertaking hydrological studies of floodplain areas, especially in smaller watersheds as part of the process of developing flood mitigation plans. Work with Indiana Geological Survey and CUSEC to identify and map faults and

historical epicenters in the state. Work with the NWS to identify repetitive areas and vulnerability of communities to flooding and other weather hazards.

GOAL #5

Project: Develop a program to identify needs for monitoring systems.

Lead Agency: IDHS, INDR

Coordinating Agencies: Local emergency management, NWS, IDNR, USGS, Indiana Geological Survey

Possible Funding Sources: HMGP, NWS, local sources

Timeline: Ongoing

OBJECTIVE

Encourage local EM agencies to install at least one weather station near their EOC. Encourage local officials to work with NWS to expand the CoCoRAHS program which provides rain gages to individuals willing to report precipitation information to local NWS offices. (Delaware County secured funds and installed several weather stations in the county).

GOAL #6

Project: Maintain an effective Silver Jacket Program that will facilitate implementation of the Indiana Hazard Mitigation Plan, and recommend modifications to the Governor through the GAR (Governor's Authorized Representative).

Lead Agency: IDHS

Coordinating Agencies: Local Emergency Management, USFWS, USACE, FEMA, USGS, and state agencies.

Possible Funding Sources: IDHS

Timeline: ongoing

OBJECTIVE

Establish an ongoing State Hazard Mitigation Team, and develop a process for identifying the team members and their interests, authorities, and policies for mitigation, and how we can use them to achieve our mitigation goals. Identify the training needs for the members of the team to equalize understanding of mitigation goals and programs in order to assure its overall effectiveness. Work with other agencies to identify current and future mitigation goals and objectives. The State Hazard Mitigation Team has been proposed, drafted, and approved by IDHS, and is awaiting the Governor's approval by Executive Order.

GOAL #7

Project: Identify mitigation opportunities for long-range planning considerations.
Lead Agency: IDHS
Coordinating Agencies: Local Emergency Management, USACE, FEMA, State Historic Preservation Officer, community planners, building & zoning officials, IDNR
Possible Funding Sources: IDHS
Timeline: Ongoing

OBJECTIVE

Work with local emergency management to identify known mitigation opportunities, and to investigate resources in the community. Establish a process for tracking both the mitigation opportunities and the resources available to the communities.

GOAL #8

Project: Conduct workshops to support local mitigation planning.
Lead Agency: IDHS
Coordinating Agencies: IDHS Training Division, Local Emergency Management, FEMA, state chapter APA, IDNR, NWS
Possible Funding Sources: FMA, IDHS, PDM, & PDMC
Timeline: ongoing

OBJECTIVE

Work with local emergency management and IN DHS TRAINING DIVISION to develop and provide workshops at the local level to assist communities in developing pre-disaster hazard mitigation plans. At the end of the workshop, participants will be equipped with a flood mitigation plan, which will provide the foundation for developing an all hazard plan for the community. NWS can help provide weather and water safety training materials and train-the-trainer to support local emergency management in these outreach efforts

GOAL #9a

Project: Encourage adoption of building and zoning codes that support floodplain management, earthquake, and tornado objectives in all counties of the state.
Lead Agency: IDHS
Coordinating Agencies: Local Emergency Management, USFWS, USACE, FEMA, Indiana Geological Survey, IDNR, Indiana Building Commission
Possible Funding Sources:
Timeline: Ongoing

OBJECTIVE

Work with the State Building Commission and the legislature to pass the 2009 International Building Code (IBC), including Indiana Amendments that will maintain a requirement for elevations certificates to be provided for each structure.

Where applicable, encourage locals to adopt and implement the IBC, by providing information, assisting in getting local building services inspectors on board to encourage it, and spur its incorporation into local land use and development plans. Help the community explore ways to get builders to adopt the requirements of the code.

Work with the Building and Fire Safety Division to further explore future tie down and installation regulations for industrialized structures and manufactured housing.

GOAL #9b

Project: Encourage and assist with an update of the General Administrative Rules to address the anchoring of industrialized buildings being used for temporary classroom facilities.

Lead Agency: IDHS

Coordinating Agencies: Local Emergency Management, USFWS, USACE, FEMA, Indiana Geological Survey, IDNR, Indiana Building Commission, NWS, Indiana Education Department

Possible Funding Sources:

Timeline: ongoing

OBJECTIVE

The State Plan Review Program has been able to automate a notification of the NFIP program whenever building plans are submitted indicating that the structure will be constructed in a floodplain. This more proactive notification of the intent to construct allows the Department of Natural Resources Division Of Water staff to address floodplain concerns before construction begins. The state of Indiana has added a requirement to the Residential Building Code to tie roof members to the structure to reduce lift of the roof structure during high wind events.

The State of Indiana has adopted the 2006 edition of the International Building Code (IBC) with Indiana Amendments. These codes will be effective June 16, 2008.

Vanderburgh County adopted local ordinance requiring better and more strapping which applied to new installations of manufactured housing that exceeds the IBC, but is more in line with the industry standards. The City of Evansville and Vanderburgh County received a grant to bring existing manufactured housing in compliance with the new ordinance.

GOAL #10

Project: Identify critical and government facilities. Determine methods of protection in hazard prone areas, including relocation, flood proofing, earthquake/wind retrofit, back-up systems.

Lead Agency: IDHS

Coordinating Agencies: Local Emergency Management and land use officials, local governmental entities.

Possible Funding Sources: IDHS, local funding

Timeline: Ongoing

OBJECTIVE

Coordinate with local emergency management and building officials in the identification of critical facilities that are vulnerable to any hazard, and formulate a plan to relocate or retrofit those facilities, and to make sure that these facilities are insured. Identify unmet needs in the form of back-up power systems, and alternative sources of services in the event of a disaster affecting these facilities.

GOAL #11

Project: Develop a state-wide hazard mitigation training program for local government officials, i.e. building inspectors, community planners and public works, state agencies, and construction professionals (contractors, architects, designers).

Lead Agency: IDHS

Coordinating Agencies: Local Emergency Management, other local government officials, IDNR, FEMA, USGS

Possible Funding Sources: IDHS, FEMA

Timeline: 2 years

OBJECTIVE

Work with local government officials and IDNR to determine training needs of local government officials who are involved in overseeing the community's development, infrastructure, etc. Educational funding would be used to train engineers, architects and building contractors on disaster resistant construction and pre- and post-earthquake building evaluation. Provide opportunities for local officials to attend ATC-21 (Rapid Seismic Evaluation of Buildings) seminars by hosting the training or providing information on training venues. Also, investigate opportunities for training in other hazards.

GOAL #12

Project: The State has set a task under “All Hazards” for warning systems for all hazards. The warnings for floods and the education of the public will be part of this task.

Lead Agency: IDHS

Coordinating Agencies: Local Emergency Management, other local government officials, IDNR, FEMA, USGS, NWS

Possible Funding Sources: IDHS, FEMA

Timeline: 2 years

OBJECTIVE

Work with the local emergency management and IDNR to identify areas and locations where warning systems are needed and would best be served by a warning system. Develop a public information and awareness program to address the hazards and the need for public action to prepare, plan and respond to these hazards.

Encourage local communities to partner with local media, manufacturers and NWS to conduct NOAA radio sales promotions (similar efforts have resulted in more than 80,000 NOAA radio sales in recent years in Evansville, Indianapolis and Terre Haute). In 2006, the Indiana Legislature passed “CJ’s Law”. This law requires that all new manufactured housing units be equipped with an alarmed NWS all hazards radio. This is the first legislation of its kind in the nation. Indiana Department of Homeland Security will continue encouraging the use of NWS all hazards radios and will work diligently to encourage passage of similar legislation for all housing units no matter the type of construction.

GOAL #13

Project: Catalog and Mitigate Repetitive Loss and Sever Repetitive Loss Properties

Lead Agency: IDHS

Coordinating Agencies: Local Emergency Management, other local government officials, IDNR, FEMA, USGS, NWS, ACOE, Silver Jackets

Possible Funding Sources: IDHS, FEMA

Timeline: ongoing

OBJECTIVE

The IDHS will identify the universe of repetitive loss and severe repetitive loss structures and catalog the structures using GIS and database technology. The mitigation of repetitive loss and severe repetitive loss properties has always been a priority. However, IDHS will actively work with the top 20 repetitive loss communities to effectively use repetitive flood claim grant and severe repetitive loss grants to reduce the number of remaining properties.

4.2 State and Local Capabilities

Some Historical Perspective on Floodplain Management

The flood loss reduction policies of the United States were crafted a century ago in recognition of a federal role in flood protection, and were modified after devastating floods in the 1920s and 1930s. The policy at that time was founded on a popular belief in human ability to control nature through technology and through the might of the federal government. In the late 1950s and 1960s it was recognized that federal programs could not possibly control all floods, and that management both of floodprone lands and of human occupancy of them was necessary.

The conceptual framework for these policy changes emanated from Gilbert F. White's dissertation, *Human Adjustment to Floods*, published in 1945. Although it was not broadly embraced at the time, this ground-breaking work was the first to suggest a multi-pronged strategy for the management of flood losses. Several states already were implementing floodplain management initiatives, but the first federal application was made by the Tennessee Valley Authority through the work of James Goddard in the 1950s. Between the academic foundation laid by White and the applications pursued by Goddard and a handful of other floodplain management practitioners, lessons were learned that allowed for the crafting of a new way to address flood losses.

Despite this knowledge, during the 1950s and early 1960s mainstream federal policy continued to promote a strong federal lead in the control of floods—particularly in providing federal funds for structural control projects—along with increased post-disaster benefits, so that there was very little incentive for local or state governments to worry about managing flood hazards.

With the establishment of the National Flood Insurance Program (NFIP) in 1968, the relationship between the federal government and state and local governments was altered. From that point forward the premise was that escalating disaster costs must be controlled and that flood protection was not simply the responsibility of the federal government. Through flood insurance, those at risk began to bear a larger share of the costs associated with flooding. The NFIP also served as a mechanism to bring the responsibility for floodplain management to the states and communities of the nation.

National Flood Programs and Policies in Review 2007 -ASFPM

Historically, in Indiana, the state or local capability to carry out the mitigation measures to achieve the goals and objectives that are identified in this plan and local mitigation plans have been a political decision. These decisions are driven by the environment existing at any given time. Ideally, the political forces should be committed to the principles of mitigation, willing to commit the time and financial responsibilities in the short run to benefit in the long run. Only measures that as a result of major, unexpected events get the focus of the community are changed as a result of short term projects.

Since approval of the State plan in 2005, the State mitigation staff has increased by one person. This staffing increase was offset by an increase in volume and quality of grant applications and the start of two new federal programs (PFC and SRL). This has resulted in no direct change to State hazard management capabilities between 2005 and 2008.

Capability is for the most part economically driven. As the economy prospers so does mitigation. As the economy slows, and resources in all levels government must be stretched and allotted carefully to assure that essential services will be maintained, spending on mitigation will be reduced. The political will of the party in power has, does and will continue to influence the state's or local jurisdiction's ability to accomplish mitigation.

Indiana in recent years (like many states) has been reactive rather than proactive when it comes to mitigation. For years, it was neglected. Funding was available from outside sources and state sources only in reaction to significant events which impacted the health and safety of its residents. In order for a mitigation measure to be implemented it had to be relatively painless and require little or no economic commitment from the General Fund. That is not to say, that the state is resistant to mitigation. Indiana has one of the most strict flood control acts in the country. Considering that Hoosiers have vigilantly preserved their home rule form of government, this is a significant achievement. In fact, the flood control act precedes the National Flood Insurance Act.

As the result of the 1937 flood along the Ohio River, Indiana relocated portions of Leavenworth and Madison to protect the citizens from flooding. This was accomplished while the state and the nation were still recovering from the Great Depression. The state legislature enacted the Indiana Flood Control Act with the hope that this would reduce the likelihood of another flood. They may not have been able to hold back the water (that would come later), but if they restricted the number of homes built along the river, another flood would have less impact.

With few major presidentially declared disasters over the last half of the 1990's the state has continued to implement the measures identified to achieve its enumerated goals and objectives. This is due in part to local communities or individuals that have pursued mitigation with a religious fervor. Relying on state, local or private resources to reduce the threat to life and safety associated with the risk that comes from natural hazards or human affected causes, these efforts have been piecemeal at times but effective. The Town of English was relocated during this time period. Since the relocation, the county has had several flood events that resulted in water levels in excess of four feet in the "old town" area with no or little damage.

If the state or the locals will see mitigation as a long term goal and as a process rather than a project, mitigation need not be thrown off track by changes in the economic or the political climate. To this end, many of the measures identified are designated as on going. Mitigation, when done properly, can assist a society to grow and prosper.

Local capabilities are widely varied throughout the state. Some are proactive where there is a significant risk. Such as in the southwest part of the state where Evansville and Vanderburgh and surrounding counties have actively pursued changes in their and the State's building codes to assure tighter seismic control on buildings. They have retrofitted fire stations, hospitals, nursing homes and outreach program to individuals to make their residences earthquake safe. During this time they experienced no significant earthquakes. They have experienced some that registered between 4.3 and 5.1 on the Richter scale.

As long as there is a real or perceived threat, the state and local jurisdictions will do what needs to be done in order to reduce the economic impact of disaster events.

The increasing number of local mitigation plans has made local jurisdictions more aware of their risks and possible activities to reduce their risk. Jurisdictions with plans have the distinct advantage of an action plan that is ready to implement as funding becomes available. Recognizing that thoughtful consideration of risk and an agreed mitigation action plan is critical to intelligent mitigation actions, FEMA mitigation grants are conditioned on the jurisdiction having an approved Hazard Mitigation Plan. With the approval and adoptions of local plans, communities become eligible to receive mitigation funding for their projects.

At this writing, ten multi-jurisdiction county plans have been approved and adopted; eight have met FEMA requirements and will be approved following adoption by each of the participating jurisdictions. Two single jurisdiction plans have been approved; two have met FEMA requirements and will be approved following adoption by the communities. (For a mapped status of plans in each county see figure in Section 5 on page 5-7)

4.2.1 Pre- and Post-Disaster Programs

The State of Indiana emphasizes reduction of adverse effects from hazard events and promotes programs to achieve this objective. This section includes matrices that outline the State's pre- and post-disaster programs that promote mitigation objectives. IDHS utilized a revised form from FEMA 386-3 (part of the mitigation planning series) to assist in the determination of specific mitigation capabilities of Indiana's Departments and Agencies and identify the programs that support, facilitate, or hinder the mitigation process. The Comments column provides further description and evaluation of the programs and policies.

Definitions:

- Support loss reduction – Programs, plans, policies, regulations, funding or practices that help implement mitigation measures.
- Facilitate loss reduction – Programs, plans, policies, etc. that make implementing mitigation measures easier.
- Hinder loss reduction – Programs, Plans, policies, etc., that pose obstacles to implementing mitigation measures.

Office of the Governor

Agency Mission/Function:

Under Indiana Law, the Governor is responsible for the Coordination of all of Indiana's emergency/disaster management system including mitigation programs.

Table 4.2.1.a
Office of the Governor Mitigation Summary

Programs, Plans, Policies, Regulations, Funding, or Practices	Effect on Loss Reduction (X)			Comments
	Support	Facilitate	Hinder	
Disaster Assistance Appropriations (Post-Disaster)	X			The Governor can request appropriations from the General Assembly for disaster assistance whenever he/she deems it is necessary for the protection of all citizens. The Authority of an Executive Order can establish and require that the state, its agencies and departments and local communities adopt mitigation
Executive Order for the Adoption of Mitigation strategies (Pre- and Post-Disaster)		X		The Authority of an Executive Order can establish and require that the state, its agencies and departments and local communities adopt mitigation strategies, and principles as part of their governing or regulatory functions.

Indiana Department of Homeland Security Agency (IDHS)

Agency Mission/Function:

IDHS serves as administrator and coordinator of the State's mitigation projects that have been funded by the Federal government through FEMA under the Robert T. Stafford Act, Public Law 93-288. IDHS coordinates all situation and damage assessment operations in a disaster area. The agency routinely cooperates with federal, state and local governments to maintain and develop disaster preparedness, response, recovery and mitigation Plans. IDHS establishes and maintains an EOC to provide coordination and public information during emergencies and disasters.

The State Hazard Mitigation Officer serves as a member of the Indiana State Hazard Mitigation Council (ISHMC). The ISHMC identifies mitigation projects, evaluates hazards and prioritizes projects for funding. IDHS coordinates with several state agencies to select and implement HMGP projects.

Table 4.2.1.b
Indiana Department of Homeland Security Agency Mitigation Summary

Programs, Plans, Policies, Regulations, Funding, or Practices	Effect on Loss Reduction (X)			Comments
	Support	Facilitate	Hinder	
Manages the State Hazard Mitigation Program (Pre- and Post-Disaster)	X			The mitigation staff's purpose is to promote mitigation statewide and to manage the FEMA mitigation Programs for Indiana.
Hazard Mitigation Grant Program (HMGP) (Post-Disaster)	X			IDHS administers this program, which is available after a Presidential Disaster Declaration. HMGP funds hazard mitigation plans and cost-effective projects that reduce or eliminate the effects of hazards and/or vulnerability to future disaster damage.
Pre-Disaster Mitigation Grant Program (PDM) (Pre-Disaster)	X			IDHS administers funds from this annual, national competitive program. PDM funds hazard mitigation plans and cost-effective projects that reduce or eliminate the effects of hazards and /or vulnerability to future disaster damage.
Flood Mitigation Assistance Program (FMA) (Pre- and Post-Disaster)	X			IDHS administers this program, which funds flood mitigation plans, provides technical assistance and funds construction projects that reduce flood risk to insured, repetitive loss properties.
Encourages and promotes jurisdiction participation in NFIP. (Pre- and Post-Disaster)	X			IDHS requires good standing in the NFIP as a prerequisite to mitigation funding.

Programs, Plans, Policies, Regulations, Funding, or Practices	Effect on Loss Reduction (X)			Comments
	Support	Facilitate	Hinder	
Education and Outreach (Pre- and Post-Disaster)		X		Mitigation Staff promotes pre- and post-disaster mitigation techniques, including retrofitting, NFIP, floodproofing, and construction of saferooms, is imperative for prevention of damage from future events.

Indiana Department of Transportation (INDOT)

Agency Mission/Function:

INDOT's mission is to provide the best transportation system that enhances mobility, stimulates economic growth, and integrates safety, efficiency and environmental sensitivity. Construction and Maintenance of the major state and federal highways and interstates and related infrastructures within the State is the primary focus.

Table 4.2.1.c
Indiana Department of Transportation Mitigation Summary

Programs, Plans, Policies, Regulations, Funding, or Practices	Effect on Loss Reduction (X)			Comments
	Support	Facilitate	Hinder	
Engineering and Design Practices (Pre- and Post-Disaster)	X			Provides technical assistance for relocation of critical facilities, relocation of bridges and upgrading of culverts.
Disaster Recovery and Repair (Post-Disaster)		X		Clears and repairs roadways interrupted by flooding, tornados and landslides. Promotes and utilizes mitigation measures throughout engineering and design process to prevent future damage.
Education and Outreach (Pre-and Post-Disaster)	X			The INDOT provides information to citizens on safety and prevention techniques and promotes severe weather awareness.

Indiana Department of Natural Resources (IDNR)

Agency Mission/Function:

The mission of the Indiana Department of Natural Resources is to protect, enhance, preserve, and wisely use natural, cultural, and recreational resources

for the benefit of Indiana's citizens through professional leadership, management, and education. To satisfy such a broad and diverse responsibility, the Department is divided into two distinct areas of responsibility: the Regulatory Management Team; and, the Land Management Team. The Regulatory Management Team consists of the Divisions of Water; Entomology and Plant Pathology; Soil Conservation; Historic Preservation and Archeology; Reclamation; and Oil and Gas. Outdoor recreation and land management programs are housed within the Land Management Team. That unit consists of State Parks and Reservoirs; Nature Preserves; Land Acquisition; Fish and Wildlife; Outdoor Recreation and Forestry.

The IDNR regulates the state's rivers, streams, dams and levees, reservoirs, lakes and floodplains. Administers and enforces the National Flood Insurance Program regulations and State Floodplain regulations. The Department also advises local communities regarding enforcement of their floodplain ordinances.

Table 4.2.1.d
Indiana Department of Natural Resources Mitigation Summary

Programs, Plans, Policies, Regulations, Funding, or Practices	Effect on Loss Reduction (X)			Comments
	Support	Facilitate	Hinder	
Floodplain Management Program (in accordance with IC 14-28-1 Flood Control Act and IC 14-28-3 Floodplain Management Act) (Pre- and Post-Disaster)	X			IDNR, Division of Water coordinates with the NFIP; monitors compliance with state and local floodplain management standards; provides assistance in mitigation planning and identifies flood hazards
Indiana Dam Safety Program (IC 14-27-7 Dams, Dikes and Levees Regulation Act) (Pre- and Post-Disaster)	X			Inspection, enforcement and permitting programs for dam and levees, classifies hazards and develops standards for dams and levees.
Conducts Hydrological Studies (Pre-Disaster)		X		Maintains records of lake, stream and river levels necessary for proper identification of flooding hazards. Cooperates in USGS data-collection programs. Currently, more than 80 percent of the continuous hydrologic data-collection activity is maintained through efforts cooperatively funded by the IDNR and the USGS.

Programs, Plans, Policies, Regulations, Funding, or Practices	Effect on Loss Reduction (X)			Comments
	Support	Facilitate	Hinder	
Protects Threatened or Endangered Species (Pre- and Post-Disaster)			X	Coordination early in project development determines potential effects on threatened or endangered species. Also coordinates with US Fish and Wildlife.
Indiana Historic Preservation Office (in accordance with Section 106 of the National Historic Preservation Act) (Pre- and Post-Disaster)			X	FEMA, in coordination with the State Historic Preservation Officer, ensures that the effects a proposed project may have on any district, site, building, structure or object that is included in or eligible for inclusion in the National Register of Historic Places are not adverse. If there are adverse effects, FEMA enters into consultation with the SHPO to avoid or mitigate effects to cultural resources and develop a project-specific agreement to identify the measures to mitigate the effects.

Indiana Geological Survey

Agency Mission/Function:

The Indiana Geological Survey provides services to the State of Indiana that contributes to the wise stewardship of its citizenry through the gathering and interpretation of relevant geological information. Indiana Geological Survey is a member of the Association of Central United States Earthquake Consortium and the Mitigation Planning Subcommittee.

Table 4.2.1.e
Indiana Geological Survey Mitigation Summary

Programs, Plans, Policies, Regulations, Funding, or Practices	Effect on Loss Reduction (X)			Comments
	Support	Facilitate	Hinder	
Consultation on geologic features and soil types, subsidence and slope stability. (Pre- and Post-Disaster)		X		Carried out through a combination of the following activities: geologic sample and data collection and storage, information dissemination (in the form of published maps, reports and databases), educational outreach programs, focused research initiatives and cooperative investigations with governmental agencies, industries and educational organizations.

Indiana Department of Environmental Management (IDEM)

Agency Function/Mission:

The Indiana Department of Environmental Management utilizes Federal Environmental Protection Agency funding for the construction and upgrading of water and waste treatment facilities. IDEM is a member of the Indiana State Hazard Mitigation Committee.

Table 4.2.1.f
Indiana Department of Environmental Management Mitigation Summary

Programs, Plans, Policies, Regulations, Funding, or Practices	(X)			Comments
	Support	Facilitate	Hinder	
Consultation (Pre- and Post-Disaster)	X			Identifies disaster and environmental concerns and issues surrounding mitigation projects.
Technical Assistance (Pre- and Post-Disaster)		X		Provides technical assistance concerning Superfund sites. Incorporates mitigation objectives whenever possible.

Indiana State Department of Health

Agency Function/Mission:

The Indiana State Department of Health serves to promote, protect, and provide for the public health of people in Indiana. A member of the Indiana State Hazard Mitigation Committee.

Table 4.2.1.g
Indiana State Department of Health Mitigation Summary

Programs, Plans, Policies, Regulations, Funding, or Practices	Effect on Loss Reduction (X)			Comments
	Support	Facilitate	Hinder	

The Indiana State Department of Health identifies and monitors issues that may affect the public health within the area of a disaster, i.e. well contamination, disease and vector control. (Pre- and Post-Disaster)		X		Promote integration of public health and health care policy; strengthen partnerships with local health departments, collaborate with hospitals, providers, governmental agencies, businesses, insurance, industry, and other health care entities; and support locally-based responsibility for the health of the community.
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Indiana Department of Commerce

Agency Function/Mission:

The state of Indiana wants to help communities improve. It does so by providing savings plans, tax credits, and a variety of programs to assist with public infrastructure. Community Development Division helps cities, towns and counties continue to improve. It does this in a variety of ways, including grants to assist with public infrastructure or childcare accessibility, matching savings accounts for low-income Hoosiers, and tax credits that support non-profit organizations. The Indiana Department of Commerce is a member of the Indiana State Hazard Mitigation Committee.

Table 4.2.1.h
Indiana Department of Commerce Mitigation Summary

Programs, Plans, Policies, Regulations, Funding, or Practices	Effect on Loss Reduction (X)			Comments
	Support	Facilitate	Hinder	

Provides funding under the Community Development Block Grant Program and Economic Development Program for infrastructure construction/improvement and commercial property acquisition/relocation in designated mitigation projects. (Pre- and Post-Disaster)	X			Can supply matching funds to communities for acquisition/elevation projects under the Community Development Block Grant (CDBG) program. Provides technical assistance to communities through EDA programs.
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Indiana Office of Community and Rural Affairs (OCRA)

Agency Function/Mission:

OCRA administers financial vehicles and incentives to create affordable housing for rent or purchase as well as supportive facilities. OCRA is also a member of the Indiana State Hazard Mitigation Committee.

Table 4.2.1.i
Indiana Housing Finance Authority Mitigation Summary

Programs, Plans, Policies, Regulations, Funding, or Practices	Effect on Loss Reduction (X)			Comments
	Support	Facilitate	Hinder	
Funding for construction of housing through its low to moderate income housing, senior citizen housing, etc. (Pre-and Post-Disaster)		X		Provides funding for relocation of floodplain residents through purchase of new housing.

Indiana General Assembly

Agency Function/Mission: The General Assembly is responsible for the drafting and enacting laws that govern the state and the residents of the state. Additionally, they develop and fund laws, programs and projects which guide the operation of the state.

Table 4.2.1.j
Indiana General Assembly Mitigation Summary

Programs, Plans, Policies, Regulations, Funding, or Practices	Effect on Loss Reduction (X)			Comments
	Support	Facilitate	Hinder	

Enactment of the Indiana Flood Control Act.			X	Restricted the development of floodplain property within the state for both residential and governmental structures. Commercial structures are restricted to a lesser extent. Has amended the Flood Control Act to lessen the restrictions on reconstruction in the floodway for existing structures.
Indiana Disaster Trust Fund.	X			The fund provides a method to fund disaster recovery and mitigation activities, but is not funded on an annual basis. The Trust Fund has been funded for Individual and Infrastructure Assistance, but not for Mitigation Actions, to date.
Responsible for writing, enacting and funding laws to require that mitigation principles are met and programs funded. (Pre- and Post-Disaster)		X		Funding of state disaster assistance to local communities and state agencies. Under the funding authority, they can assist communities that are unable to meet the matching requirements of the federal grant program.

Federal Emergency Management Agency (FEMA)

Agency Function/Mission:

The Federal Emergency Management Agency's mission is to lead and support various elements of society in responding to and recovering from disasters rather than be responsible for protecting institutions and reducing the loss of lives and property.

Table 4.2.1.k
Federal Emergency Management Agency Mitigation Summary

Programs, Plans, Policies, Regulations, Funding, or Practices	Effect on Loss Reduction (X)			Comments
	Support	Facilitate	Hinder	
Administers and coordinates a variety of disaster and emergency management programs and funding programs available under the Stafford Act and the Earthquake Hazards Reduction Act	X			Provides a federal 75% match Hazard Mitigation Grant Program, for community hazard mitigation projects. Assist communities and their citizens to recover from Presidential declared disasters and works to prevent future disasters. FEMA has also provided annual fund for mitigation activities under PDM-Competitive.

Programs, Plans, Policies, Regulations, Funding, or Practices	Effect on Loss Reduction (X)			Comments
	Support	Facilitate	Hinder	
Administers and coordinates the National Flood Insurance Program and its funding of mitigation projects and programs.	X			Provides technical assistance to the State and communities toward the implementation of these projects. Undertakes eligibility, benefit/cost, and environmental reviews of Hazard Mitigation projects. Under the NFIP, mitigation resources to the community also include FMA, SRL, RFC, and CRS.

4.2.2 Policies Regulating Development

Regulation of development in hazard prone areas is imperative. There are several policies, which perform this function in an effort to prevent future damage or reduce the risk of damage in already developed areas. Indiana is designated as a “home rule” state (IC 36-1). Counties, municipalities, and townships are granted all the powers they need for the effective governing of local affairs. This results in a lack of uniformity from one jurisdiction to the next. Home Rule gives municipal jurisdictions the power to govern themselves in local municipal matters independent of state laws. When a state law and a local ordinance govern the same activity, the ordinance yields to state law.

Table 4.2.2.a
Policies that Regulate Development in Hazard-prone Areas

Policy Area	Description/Applicability	Effectiveness
Floodplain Management	IDNR, Division of Water coordinates with the NFIP; monitors compliance with state and local floodplain management standards; provides assistance in mitigation planning and techniques; identifies flood hazards. Pre- and Post Disaster local jurisdictions are required to comply with floodplain requirements regarding development in hazard prone areas. The requirements include provisions for building and rebuilding (regardless of the nature of damage) in floodplains.	The Program outlines strict policies for new development in high-risk, hazard-prone areas. Structures must be elevated two (2) feet above the Base Flood Elevation of the floodplain. The local floodplain managers have reduced the number of damaged structures in hazard events through permitting and promotion of mitigation alternatives.

Policy Area	Description/Applicability	Effectiveness
Coastal Erosion Management	The purpose of the Indiana Lake Michigan Coastal Program is to enhance the state's role in planning for and managing natural and cultural resources in the coastal region and to support partnerships between federal, state and local agencies and organizations. The Indiana Lake Michigan Coastal Program relies upon existing laws and programs as the basis for achieving its purpose. There are 3 coastal counties in Indiana.	Coastal grant programs are available to local jurisdictions. The NFIP has not mapped flood areas along coastlines, but it has been estimated that 25 percent of homes and other structures within 500 feet of the U.S. coastline and the shorelines of the Great Lakes will fall victim to the effects of erosion within the next 60 years.
Zoning	Zoning is a locally enacted law that regulates and controls the development and land use of private property. It prevents development in inappropriate places (e.g., flood plains, steep ravines, lands with underground caves, etc...) and by regulating the use of land to protect flood prone areas.	The State continues to promote the importance of zoning as an effective method to minimize damage and encourages local jurisdictions to adopt zoning ordinances. Zoning is still a voluntary program, and continues to meet resistance in smaller, rural communities.
Land-Use Planning	The land use plan lays out land development goals and priorities. The plan details how specific parcels of property will be used, allowing safe and coordinated development. Land use plans take into consideration the hazards associated with any give area in a jurisdiction.	Some Indiana Residents consider land use planning an encroachment on their personal property, but the process allows jurisdictions to identify site-specific hazards and avoid development that places people or property in harms way. Still found mostly in larger cities and to some extent as economic development plans in smaller communities.

4.3 Mitigation Measures and Funding Sources

The following are hazard-specific mitigation measures developed by the Indiana Hazard Mitigation Council. All projects were developed with the state's overall mitigation strategy to safeguard the health, safety, and life of individuals and protect private and public property. Each identified measure also includes funding sources, the agency which would serve as lead agency and a possible timeline. All of these timelines are subject to funding sources being available and budgetary restrictions.

The mitigation strategy was developed to encompass not only state agency actions and projects, but also incorporates local actions and projects in the strategy. One such example is public education and outreach. Everyone at both the state and local levels believe that education and outreach are the best deterrents to the foolish actions by the citizenry, such as driving through a flood water covered roadway. Most people have somewhat of a lax attitude toward their own safety. Just as most will say "it will not happen to me so why should I spend that kind of money on a weather alert radio, or a smoke detector". Yet

statistics have shown a marked decrease in fire deaths and injuries where smoke detectors are in use and operational.

The State of Indiana in its Hazard Mitigation Administrative Plan has always considered risk in determining what projects are pursued and funded. In addition, the Administrative plan addresses those homes that are repetitive loss properties in the prioritization of project applications. These structures are given priority due to the repetitive nature of the damage and the costs to the community in responding to the properties whenever a flood event occurs. Although intense development pressures are important they have not been ranked as a priority in the state hazard mitigation plan or the administrative plan's prioritization scheme.

4.3.1 All Hazards Mitigation Measures

Project 1: Work with local emergency management to develop StormReady Counties and StormReady Supporter organizations.

Lead Agency: IDHS

Coordinating Agencies: NWS, USGS, Silver Jackets Interagency Hazard Mitigation Taskforce

Possible Funding Sources: HMPG, USACE Community Assistance Funds, State and local sources

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: NWS StormReady program requires redundant communication capabilities for receiving and disseminating all hazards information, a method to monitor developing hazards, a formal plan to outline actions during developing hazards, and an outreach program to inform communities how to become better prepared for hazards. The program also requires NOAA all-hazards radio availability in most public owned facilities. A StormReady entity is thus better prepared for all hazards and has coordinating plans in place to conduct efficient operations during a developing hazardous event. StormReady recognition may also result in reduced flood insurance rates by earning Community Rating System (CRS) points through the National Flood Insurance Program (NFIP).

Project 2: Collect and quantify the local data from mitigation plans as they are developed, and risk assessments from other local planning efforts into data that is in a standard format to make them useable. (Data will include assessment of risk and vulnerability, loss estimates, capability assessment and mitigation actions and projects.)

Lead Agency: IDHS

Coordinating Agencies: County Emergency Mgmt. & Planning offices,

Possible Funding Sources: FEMA, Department of Homeland Security

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Within every county in the state there are several planning initiatives that require at least a portion of a risk assessment that can be adapted to meet the mitigation requirements. The state's online mitigationplan.com will allow the state to collect the data from all of the local plans as they are completed. The state requires that all counties that receive funding for planning include their data in the online system. This will allow the data to be easily incorporated into the state's mitigation plan to develop a more comprehensive state risk assessment. Additionally, it will identify the mitigation actions to be incorporated into the next revisions of the plan.

Project 3: Improve upon the state's risk assessment with the collaborative effort between Silver Jackets member agencies to include the Polis Center. Using Polis Center data, the Indiana Department of Homeland Security will estimate the dollar losses for state facilities at risk.

Lead Agency: IDHS

Coordinating Agencies: Indiana University, Purdue University, National Weather Service, Regional Planning Commissions, Indiana Geological Survey, Department of Administration, INDOT, IDNR, IDEM, ACOE, USGS

Possible Funding Sources: FEMA, Department of Homeland Security, ACOE, USGS

How Project Contributes to Mitigation Strategy: In enhancing the risk assessment, the state will be able to further assess the risk to state facilities and infrastructure. The State applied for a PDM-C grant for fiscal year 2008 to complete an enhancement to the flood risk tools and for the update of the State Plan due in 2011. This study will also enhance the hazard analysis and risk assessment for the Counties within the Maumee River Basin area. The Department of Administration, land office continues to map the state facilities. The Polis Center with the USGS will run enhanced HAZUS models for flooding and improved earthquake to assess the vulnerability with detailed local data

where available. The mitigation section and the Polis Center along with the members of the Silver Jackets Team will work to complete the analysis for the other hazards to complete the enhanced plan. This will allow the state to quantify the dollar value of state facilities at risk, and estimate potential dollar losses.

4.3.2 Flooding

The major goal for this hazard is to protect the lives and properties of residents at risk, and to protect critical facilities. The major remedy for this type of disaster is prevention, by moving or elevating residences out of the flood fringe and the first priority in the floodway would be removal of the residences. This not only protects people, but also stops the escalating cost of repetitive damage. The foundation for this remedy is the community's hazard mitigation plan and its commitment to adhere to the requirements of the National Flood Insurance Program.

Project 4 : Develop a strategy to ensure community's participation in the National Flood Insurance Program (NFIP), and its compliance with NFIP regulations. Encourage the community's adoption of a floodplain management plan, and participation in the Community Rating System (CRS).

Lead Agency: IDNR

Coordinating Agencies: County Emergency Mgmt. & Planning offices, IDHS, FEMA's National Flood Insurance Program.

Possible Funding Sources: FEMA

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Build on existing strategy so that IDHS and IDNR have a coordinated program through the local emergency management programs and floodplain officials. Specifically, staff will target communities that are not participating in the NFIP that have existing or newly identified flood hazards for outreach. Work with locals on a compliance strategy. The adoption of a local flood ordinance is the first step to reduce future damages from flooding.

Project 5: Encourage communities to upgrade stormwater runoff systems, and to integrate adequate stormwater retention and control in new construction projects.

Lead Agency: Local drainage boards

Coordinating Agencies: County Emergency Mgmt. & Planning offices, local public work and highway depts., Local watershed districts, U.S. Army Corps of Engineers, IDHS

Project Timelines: Ongoing

How Project Contributes to Mitigation Strategy: Building an outreach to locals and a network for public awareness by using the resources of the Association of Floodplain & Stormwater Management (ASFPM) to raise awareness in communities on the need to develop stormwater retention as a means of controlling runoff from large developments or development projects. Work with local drainage boards to improve local codes regarding drainage systems. Identify known areas where improved stormwater systems would reduce or eliminate flooding.

Project 6: Encourage and create awareness of acquisition/elevation projects in communities, as a hazard mitigation component of their community plans.

Lead Agency: County emergency management

Coordinating Agencies: IDHS, IDNR, County Planning offices, Local watershed districts, U.S. Army Corps of Engineers. FEMA, NWS

Possible Funding Sources: IDHS, FEMA

Timeline: 3 years

How Project Contributes to Mitigation Strategy: Identify potential projects and develop local interest in loss reduction through acquisition. In communities where there are identified acquisition/elevation projects, develop and implement a Flood Awareness Week. This would entail the use of local media, schools, and commercial outlets to promote and inform communities of existing vulnerability and possible solutions to flooding problems. Create an awareness specifically of FEMA's acquisition/elevation/relocation program. Encourage local emergency management to continue the public awareness campaign throughout the year.

Project 7: Continue to identify statewide all critical facilities that remain in flood prone areas (100 yr. Flood). Create a strategy to target these facilities, and ensure that they have flood insurance until relocated out of the floodplain.

Lead Agency: IDHS

Coordinating Agencies: County Emergency Mgmt. & Planning offices, FEMA NFIP

Possible Funding Sources: IDHS, local and private sources

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Improve the state's risk assessment by identifying and mapping the state owned facilities. This includes such critical facilities as fire and police stations, schools, hospitals, oil & gas storage, sewage treatment facilities, and electrical/telephone switching facilities. Explore funding mechanisms through federal and state agencies to encourage communities and private service providers to relocate replacement facilities outside of flood hazard areas. Encourage communities to incorporate flood protection and mitigation of critical facilities in their long-range development plan.

Project 8: Create public awareness of flood proofing techniques.

Lead Agency: IDHS

Coordinating Agencies: County Emergency Mgmt. & Planning offices, FEMA, IDNR, state associations

Possible Funding Sources: Pre-Disaster Mitigation program

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Encourage individual mitigation projects to reduce losses from low depth flooding. Work with County emergency management using home improvement and other commercial retailers to showcase methods and supplies for wet and dry flood proofing of homes which receive low level or basement flooding. Work with County emergency management to explore other methods for reaching the public.

Project 9: Create master flood hazard risk list by combining repetitive loss lists of structures, including individual assistance and insurance claims. Target Severe Repetitive loss properties for acquisition

Lead Agency: IDHS

Coordinating Agencies: FEMA, IDNR

Possible Funding Sources: RFC, SRL, & PDM-C

How Project Contributes to Mitigation Strategy: Develop a more comprehensive flood risk and vulnerability assessment and identify future projects with a more accurate vulnerability to flooding. Coordinate with IDNR to develop a current repetitive or multiple loss list of structures throughout the state to include photographic and more detailed records of the structures.

Project 10: Increase local officials and dam officials awareness of NWS Flash Flood warning program for imminent dam failures. Contact with NWS can allow NWS to issue Flash Flood Warnings thereby activating EAS which increases media's and public awareness of hazard.

Lead Agency: IDHS

Coordinating Agencies: Local emergency management, NWS, IDNR, USGS, Indiana Geological Survey

Possible Funding Sources: HMGP, local sources

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Identify populations and areas at risk for catastrophic flooding from dam and levee breaches, and create a public awareness of the risks associated with living near high risk structures and near rivers and waterways. This project is listed under "All Hazards", and also applies to flood warning systems. A component of this project is public education.

Project 11 : Encourage and assist Dam Owners to develop, maintain, and test Dam Emergency Action Plans which include inundation maps for possible failures. Incorporate inundation map data in the determination of dam failure probability.

Lead Agency: IDNR- Dam & Levee sections

Coordinating Agencies: Local emergency management, NWS, IDNR, USGS, Indian State Legislature

Possible Funding Sources: HMGP, local sources

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Identify areas at risk for flooding from dam breaches and increase downstream residents awareness of their risk of dam failure related flooding. Emergency Action Plans should include contacting NWS when imminent dam failure is expected. Contact with NWS can allow NWS to issue Flash Flood Warnings thereby activating EAS which increases media's and public awareness of hazard.

About 1000 dams are regulated by the state of Indiana of these 240 are high hazard dams. A high hazard dam is defined as a dam located where failure may cause loss of life, serious damage to homes, industrial and commercial buildings, important public utilities, main highways or railroads. About 250 are significant hazard dams. Significant dams are located predominantly in rural or agricultural areas where failure may damage isolated homes, main highways or minor railroads or cause interruption of use or service of relatively important public utilities. The remaining 500 are low hazard dams. Although all dams pose a risk to the community, the high hazard dams present the greatest population risks and vulnerabilities. As is occurring nationwide, residential development is spreading into the valleys below many dams, statewide, causing dams previously rated lower to be elevated to a higher hazard classification. This is a dynamic situation. In order to provide a starting point the state of Indiana wishes to begin by addressing the highest hazards which may impact the greatest populations.

In the 2004 legislative session the legislature considered but did not pass a law that would have required the development of Emergency Action Plans by dam owners. After the 2005 Katrina event, however, the FEMA National Dam Safety Program has identified the creation of EAP's for all high hazard dams nationwide as a significant priority (regardless of whether or not states have a statutory mandate requiring such planning).

Creation of EAP's is expensive and no funding or staff resources are currently identified for this project. This will require joint program development, creativity,

and cooperation between IDNR and IDHS to ultimately accomplish the goal of reducing risks for downstream residents

Project 12: Develop updated Floodplain maps for all counties in Indiana.

Lead Agency: FEMA

Coordinating Agencies: IDNR, local floodplain management, Congress

Possible Funding Sources: Congressional funding under the Map Modernization

Timeline: 7 Years

How Project Contributes to Mitigation Strategy: Improve the state's ability to assess at risk areas. IDNR with funding from FEMA's Map Modernization is in the process of updating and digitizing the floodplain maps for most of the counties in the Indiana. IDNR expects to have the majority of the mapping completed within seven years provided the funding remains intact.

Project 13: Develop real-time and forecast flood inundation mapping for flood prone communities in Indiana

Lead Agency: USGS, INDHS

Coordinating Agencies: NWS, IDNR, US Army Corps of Engineers, Polis Center

Possible Funding Sources: INDHS, USACE, IDNR, Polis Center, City of Indianapolis, Ohio River Valley Water Sanitation Commission, Indianapolis Museum of Art, other cities

Timeline: 3 Years

How Project Contributes to Mitigation Strategy: Provides a new, state-of-the-art tool that will allow emergency managers to make mitigation and response decisions based upon actual and forecast flood conditions. Emergency managers will be able to view flood inundation maps through the World Wide Web and download the flood maps for input to HAZUS for loss estimations.

Project 14: Develop a flood risk assessment tool to perform flood hazard risk assessments for new or updated State and local multi-hazard mitigation plans. The tool will be designed to produce more accurate loss estimates using HAZUS by including detailed information on local hazard conditions and replacing the national default inventories with more accurate local inventories of buildings, essential facilities and other infrastructure. The tool will use new computer and data resources including high-resolution digital ground elevation models equivalent to contour intervals of one or two feet; an update to FEMA's HAZUS-MH risk assessment and hazard mitigation planning software program that allows users to easily import a flood surface to perform loss estimates, detailed digital local building inventory data, and state-of-the-art river flood hydraulic programs. Real-time USGS stream gage data and NWS flood forecast data can be integrated into the tool to provide flood response resources.

Lead Agency: IDHS

Coordinating Agencies: USGS, NWS, Polis Center, Silver Jackets Interagency Hazard Mitigation Taskforce

Possible Funding Sources: PDM, HMPG, USGS Cooperative Program funds, USACE Community Assistance Funds, State and local sources

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Allows mitigation planners to easily and accurately perform flood hazard risk assessments for flood hazard mitigation activities including the development of new or updated hazard mitigation plans. Streamflows have been increasing in some areas of the Nation, including the Midwest, in response to increasing precipitation trends. A trend such as this coupled with increases in development has the potential to increase flood frequency discharges. Conversely, projects such as regional retention could decrease flood peaks in some areas. The flood risk assessment tool would allow mitigation planners to take such trends into account by accepting any flood scenario the user wishes to input to the tool. Thus trends in flooding could be tracked and incorporated into future hazard mitigation plan updates. The project enhances FEMA's HAZUS-MH program and encourages more communities to use HAZUS-MH as a mitigation tool.

Project 15: Develop flood information outreach resources for emergency managers and mitigation planners. Specific products will include fact sheets and Web pages that summarize where critical flood information and data can be obtained, a traveling presentation on flood hydrology for emergency managers and mitigation planners, and incorporation of new flood resources into HAZUS training classes.

Lead Agency: IDHS

Coordinating Agencies: USGS, NWS, Polis Center, Silver Jackets Interagency Hazard Mitigation Taskforce

Possible Funding Sources: HMPG, USGS Cooperative Program funds, , State and local sources

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Educates emergency management officials and mitigation planner regarding the latest developments in flood information and data. There are many new flood science information products available that can provide highly accurate hazard information for mitigation planning activities, flood response activities, and post-flood assessment activities. The outreach materials will inform emergency managers and mitigation planners where to obtain these new resources and how to effectively use them for planning, response, and assessment activities.

Project 16: Develop an automated, State-wide flood information dissemination system. The system will use the State's 800 megahertz radio system to automatically broadcast, for USGS streamgaging stations with water levels above flood stage, the most recent flood level, trend (rising, falling, unchanging) and the forecast flood peak (if the station is an NWS flood forecast point).

Lead Agency: IDHS

Coordinating Agencies: USGS and NWS

Possible Funding Sources: HMPG, USGS Cooperative Program funds, State and local sources

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Mitigation plans will identify flood prone areas and response activities designed to mitigate damages. The flood information dissemination system will provide information required to trigger response activities and thus will aid in the mitigation of flood damages.

Project 17: Develop a system such as a Web blog to provide internal communications of activities between critical agencies during floods.

Lead Agency: IDHS

Coordinating Agencies: Indiana Silver Jackets

Possible Funding Sources: HMPG, USGS Cooperative Program funds, State and local sources

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Many flood mitigation planning activities need to put into effect prior to and in the initial development of a flood. This project will allow agencies such as IDHS, IDNR, NWS, and USGS to post vital communications of their activities on a real-time basis. Those communications will help the agencies coordinate their responses prior to, during, and after a flood.

4.3.3 Winter Storms

The mitigation goal is to protect infrastructure from failing as a result of winter storms; safeguarding the infrastructure will help to minimize the impact of these storms on the community. Revising building codes and burying power lines are effective methods to preserve infrastructure during a winter storm disaster.

A significant part of mitigation is to increase public awareness so they can be prepared. For this hazard, public awareness extends beyond individual preparedness. As indicated by the first project, the public can actually contribute to the well-being of everyone in the community by planting trees in strategic places.

Project 18: Develop windbreak projects on open stretches of interstate.

Lead Agency: INDOT

Coordinating Agencies: IDHS, IDNR, FEMA, State Dept. of Agriculture

Possible Funding Sources: HMGP, INDOT, private grants

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Reduce the winter weather hazard of blowing and drifting snow by reducing open stretches near the rural sections of the interstate and highway systems. INDOT will coordinate with IDHS to develop these projects. The project will include educating the public, especially encouraging farmers to plant shrubs along their fields adjacent to roads and elsewhere to form natural snow fences and windbreaks and exercise soil conservation. Utilize and coordinate this educational activity with State Dept. of Agriculture, IHMT, local emergency management officials. Also, provide this information on State Dept. of Agriculture and IDHS web sites. Work with local emergency management officials to develop workshops. Utilize Pre-Disaster Mitigation program communities.

Project 19: Overhead to underground utility conversion.

Lead Agency: Local Rural Electric Management Cooperatives

Coordinating Agencies: IDHS, FEMA, local zoning entities

Possible Funding Sources: HMGP, Rural Electric Cooperatives

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Reduce the loss from ice and wind to the power supply system. Following a disaster, encourage utility co-ops to attend the applicant's briefing. Get more commitments from utility co-ops for future projects when funds become available. Work with local community leaders and planning depts. to encourage integration of an underground utility requirement into their community development plans and subdivision codes. Emphasize the strategy for long-term planning, and integral steps at a low cost to the community. Increase awareness of these needs utilizing industry publications, and providing information on Utility Cooperative and IDHS web sites.

Project 20: Encourage community participation in winter storm mitigation activities.

Lead Agency: IDHS

Coordinating Agencies: Local utilities, local emergency management

Possible Funding Sources: IDHS budget

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Improve the public awareness of the risk and possible mitigation activities for winter storms. Add to IDHS's Mitigation web page a site that encourages hits by individuals as well as community leaders. Work with utilities to encourage customers to do individual mitigation projects such as planting utility line friendly trees, planting tree fences along open fields, especially near roads. Encourage individual preparedness for winter storms, by working through community leaders to establish outlets in the community for preparedness education. Establish links on the State Emergency Web Site with other appropriate web sites serving the community.

Project 21: Revise building codes to increase snow loading requirements on roofs.

Lead Agency: IDHS

Coordinating Agencies: State Dept. of Building Services (IDHS), local building officials.

Possible Funding Sources: IDHS

Timeline: Completed

How Project Contributes to Mitigation Strategy: Reduce the loss to homes, commercial structures and agricultural building from excessive snow loads. The legislature adopted the International Building Code (IBC), superceding the present Uniform Building Code. However, there is still no requirement for a minimum construction standard for residential or industrial structures. The task is to encourage locals to adopt and implement the IBC, by providing information, assisting in getting local building services inspectors on board to encourage it, and spur its incorporation into local land use and development plans. Help the community explore ways to get builders to adopt the requirements of the code.

Project 22: Continue to enhance public awareness of winter storm warning.

Lead Agency: IDHS

Coordinating Agencies: Local schools, NWS, Local emergency management

Possible Funding Sources: IDHS, Pre-Disaster Mitigation program

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Target schools on what winter storm watches and warning mean, and how to key into community warning systems. What snow emergency ordinances mean to schools and to individuals. What the hazard means relative to possible consequences to health and safety. Build a program with school districts to reach schools and families to build awareness. Work with NWS to promote Winter Awareness Week, including preparation of actual Winter Emergency Kits for distribution through outlets in the community, and of a virtual Winter Emergency Kit found on IDHS or community web site. IDHS has developed a web based statewide local emergency advisory map for the public and media outlets to refer to determine the accessibility of roads and infrastructure.

4.3.4 Tornadoes and Windstorms

Because of the capricious nature of tornadoes and windstorms, the most effective mitigation is to help people become prepared and then make the right choices when the disaster hits. This means exploring and identifying options for individuals and their families. Safe rooms are becoming an important mitigation alternative, either as a specifically built facility or as a designated safe area within a public facility. In addition, through education of the public, the search for “safe rooms” can extend into every home. Mitigating this hazard by the use of warning systems will also help the public prepare for the disaster.



This photo shows the importance of safe areas and saferooms

Project 23: Encourage the adoption of more stringent building codes relating to wind resistant roofs and walls.

Lead Agency: IDHS/ Department of Building Services

Coordinating Agencies: Local Building Departments, local emergency management

Possible Funding Sources: None required; Legislative Mitigation

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Promote public awareness of the need for hurricane straps and foundation tie downs. Work with local emergency management on strategies to reach contractors, displays through retail outlets (hardware stores), etc. Work with legislature to pass the International Building Code (IBC), superceding the present Uniform Building Code. Work with legislators by providing information on the need to adopt the stricter code. Once passed, encourage adoption by communities of the IBC. Where applicable, encourage locals to adopt the IBC. Provide information, and assist in getting local building services inspectors to encourage it, and encourage its incorporation into local land use and development plans.

Indiana's Building Codes

Since 2002, Indiana has operated under the International Building Code for commercial buildings and the International Residential Code (IRC) for residential buildings. The greatest change in both codes is the significantly strict earthquake requirements, and the establishment of earthquake Design Areas instead of the current Earthquake Zones. In addition, floodplain management is now a requirement under the IBC. However, the State of Indiana continues to amend some of the requirements thus reducing some of the more stringent language to less restrictive requirements. Indiana hopes with the 2009 Code cycle to adopt the International Building Code with the floodplain requirements for elevation certification intact.

In the code, eight counties (Davies, Gibson, Knox, Posey, Spencer, Sullivan, Vanderburgh, and Warwick) have strict seismic requirements on new construction of 1 and 2 family dwellings that is at least as rigorous as current commercial requirements. The rest of state will still have no seismic requirements for 1 and 2 family dwellings. There are new restrictions on townhouses in the following counties: the eight counties noted above, and Clay, Crawford, Dubois, Greene, Lawrence, Martin, Monroe, Orange, Owen and Perry.

For wind resistance requirements, the IRC will increase from the previous 70/80/110 mph design requirements depending on location in the state to a uniform state requirement of 90 mph for all locations. The snow load requirements will remain the same: 20 lbs. per sq. ft. in the southern and central portions of the state, and 30 lbs. per sq. ft. for the northern 16 counties of DeKalb, Elkhart, Fulton, Jasper, Kosciusko, La Grange, Lake, La Porte, Marshall, Newton, Noble, Porter, Pulaski, St. Joseph, Starke and Steuben.

Project 24: Update outdoor warning systems.

Lead Agency: IDHS

Coordinating Agencies: Local emergency management, State/County warning points, NWS, FEMA.

Possible Funding Sources: HMGP, Pre-Disaster Mitigation program

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Reduce the number of injuries and loss of life from tornadic winds and severe storms to the persons who are outdoors during severe weather events. The 1950-60's systems are old and worn out, and repair parts are unavailable. There is insufficient coverage, especially for expanded communities. Identify communities that need additional, new systems and those in need of replacements. Upgrade systems replacing with a broad scope warning system that can be remotely activated according to need. Work with communities on a plan to encourage residents to purchase weather radios.

"CJ's Law" was passed in 2006, after the tragic loss of 25 lives in the tornados that swept through Vanderburgh and Warrick Counties. This law provides for the factory installation of alarmed National Weather Service Radios in all new manufactured housing units.

During the 2008 legislative session, the State of Indiana passed Senate Bill 334 amending IC 36-8. This bill requires a statewide inventory of existing and planned outdoor warning sirens. In addition, it requires a portion of the costs for new siren installations be covered by a local siren coverage fee that is assessed with all new and existing construction. The state will work with local communities to assure adequate outdoor warning siren coverage.

Project 25: Coordinate with local emergency management agencies to pre-designate safe areas for at-risk population.

Lead Agency: Local emergency management

Coordinating Agencies: IDHS

Possible Funding Sources: Pre-Disaster Mitigation program, local sources.

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Work with local emergency management to identify those at-risk populations and designate safe areas. Promote public awareness as to location of these safe areas. Improving the public's awareness of their risk of severe storms and tornadoes throughout the state and the need to take steps to mitigate their exposure.

Project 26: Develop safe rooms in new and existing private residences.

Lead Agency: IDHS

Coordinating Agencies: Local emergency management, local builders' association, FEMA.

Possible Funding Sources: HMGP, Pre-Disaster Mitigation program

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Investigate alternative types of safe rooms for the purpose of retrofitting existing structures. Work with local emergency management to develop a strategy to encourage contractors and new home buyers to build basements or safe rooms within new structures. Work with emergency management and community leaders to explore options for manufactured housing residents, including pre-fabricated modular storm shelters.

Project 27: Develop safe areas in public and private schools.

Lead Agency: IDHS

Coordinating Agencies: Local schools districts, Local emergency management agency.

Possible Funding Sources: HMGP, Pre-Disaster Mitigation program, School District, private sources.

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Reduce the risk to the state's school population from severe storms and tornadoes. Work with public and private school officials and local emergency management to provide technical assistance in the form of engineering expertise to identify areas within existing schools that are survivable in the event of tornadoes. Also, encourage school districts to include safe areas in the design of new schools. Encourage schools to secure private grants and funds for actual design and construction.

4.3.5 Earthquakes

For earthquakes no warning systems exist, so an important aspect to mitigation is to secure public facilities and infrastructure to withstand the event, and educate the public to prepare in their own homes. Three important goals to protect the community and community services are retrofitting, risk assessment and monitoring, and education of builders and the public.

Project 28: Perform structural mitigation of critical facilities - fire stations, police stations, hospitals, 911 communications centers, schools, gas, electric, water and waste water facilities. Provide funding to retrofit existing structures and cover the cost difference of building a new facility to exceed state and local building codes.

Lead Agency: Local Emergency Management

Coordinating Agencies: IDHS, FEMA, County Municipalities

Possible Funding Sources: HMGP, IDHS, local community

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Improve the local emergency services ability to respond after an earthquake by "hardening" their facilities. Work with local communities to identify critical or essential facilities in the State's earthquake risk zones. Also, assist in involving local architects and engineers to perform structural analysis of identified structures and make recommendations on the type of structural mitigation to be performed. Assist local emergency management to identify funding sources and contractors to perform the work.

Project 29: Encourage non-structural mitigation of critical facilities, including securing all non-structural elements of a structure, such as furnishings, suspended ceilings and light fixtures, building utilities like water, gas, electric and waste water. Critical facilities include schools, fire stations, police stations, 911 communications centers, hospitals, gas, water, electric and waste water facilities.

Lead Agency: Local Emergency Management

Coordinating Agencies: IDHS, FEMA, Local utilities

Possible Funding Sources: HMGP, IDHS, local community

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Reduce losses to inventory and personnel through non-structural mitigation. Work with local communities and agencies to identify non-structural risks in critical facilities. Assist in prioritizing projects and funding sources. Also, work with local emergency management in formulating a strategy for implementation of the project.

Project 30: Continue and improve the Indiana specific earthquake awareness program. This would include an Indiana earthquake risk video, explaining the seismic risk to Indiana and how to properly prepare and mitigate. Pamphlets and other materials would also be developed. Target audiences include, schools, local government agencies and businesses.

Lead Agency: IDHS

Coordinating Agencies: FEMA, American Red Cross, State Universities, Indiana Geological Survey, USGS

Possible Funding Sources: HMGP

Timeline: Ongoing- First Video completed May 2005.

How Project Contributes to Mitigation Strategy: Improve the awareness of risk from earthquake. Work with American Red Cross, Educational Institutions, and other agencies to develop an aggressive education and public awareness program on earthquakes that is Indiana specific. Identify project and funding sources for implementation and development of a plan for this program.

Project 31: Promote a public education and identification program to award small one-time grants to homeowners to perform structural and non-structural mitigation in their homes.

Lead Agency: Indiana Department of Homeland Security Agency

Coordinating Agencies: FEMA, American Red Cross, Habitat for Humanity, Homeowner Associations

Possible Funding Sources: HMGP, Pre-Disaster Mitigation program

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Reduce earthquake and cascading events to residential structures by encouraging non-structural and structural mitigation. This will also increase public awareness in the earthquake risk in Indiana. Work with local emergency management and Red Cross to promote in-home structural and non-structural mitigation programs in their communities. Ensure that mitigation projects comply with community's floodplain management regulations. Identify funding sources and assist in developing programs to facilitate the grant process.

Project 32: Develop a SOP (ATC 20 & ATC 21) to allow engineers, architects, building contractors and building officials to assist locals with damage assessment of damaged structures from earthquakes but also for all hazards.

Lead Agency: Indiana Department of Homeland Security Agency

Coordinating Agencies: FEMA, Trade Groups, State and local building commissions, Purdue University

Possible Funding Sources: HMGP, NETAP, HMTAP

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Improve the data in HAZUS-MH on critical facilities. This will improve the states overall risk and vulnerability assessment for the plan. Provide funding to disseminate this SOP to engineers, architects and building contractors on disaster resistant construction and pre-and post-earthquake building evaluation. Provide opportunities for local officials to attend ATC-21(pre-damage) Rapid Seismic Evaluation of Buildings seminars and other earthquake-resistant programs by hosting the training or providing information on where training is being held. Indiana IDHS, with cooperation from the Purdue University School of Engineering, is currently in the process of creating a cadre of trained engineers that will be available to do ATC 20 (post-damage) evaluations after an emergency event.

Project 33: Promote Earthquake Risk Mapping

Lead Agency: Indiana Geological Survey

Coordinating Agencies: IDHS, FEMA, USGS, CUSEC State Geologists

Possible Funding Source: HMGP, USGS

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Improve the awareness of the risk and vulnerability to earthquake and identify potential projects to reduce the losses from these events. Provide additional funding to the Indiana Geological Survey to continue their efforts to produce detailed soil studies. These studies will help IDHS in their efforts to keep earthquake data and maps current. This will also aid in IDHS's efforts to aid local communities in assessing their earthquake vulnerability. Participate in HAZUS user's group to provide better data for earthquake maps.

Project 34: Seismic Monitoring

Lead Agency: Indiana University,

Coordinating Agencies: IDHS, FEMA, USGS,

Possible Funding Sources: HMGP, National Science Foundation and other grant sources

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Improve the risk and vulnerability assessment and promote public awareness of earthquake activity in the state. Provide financial assistance to the Indiana University Department of Geological Sciences, to install, expand and maintain a statewide seismic monitoring network and interpret data that is recorded. This will show faulting by recording earthquake activity within the state.

Project 35: Retrofit of Existing and New Construction of Bridges and Roads.

Lead Agency: Indiana Department of Transportation

Coordinating Agencies: IDHS, FEMA, USDOT and Federal Highway

Possible Funding Sources: HMGP, USDOT

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Reduce losses to critical infrastructure, and ensure the ability of response agencies to provide services after events. Provide funding to the Indiana Department of Transportation (INDOT) for seismically retrofitting existing bridges and roads to cover cost difference in designing and building new bridges and roads to exceed seismic requirements on routes that have been identified as priority routes and access to other critical areas. Work with INDOT to identify high risk counties. Once this is complete it will assist in ensuring that mitigation measures are included in new construction plans and in retrofit projects on existing structures.

Project 36: Training of State staff in HAZUS. Creation of a State HAZUS user's group.

Lead Agency: FEMA, IDHS

Coordinating Agencies: GIS Commission

Possible Funding Sources: HMGP, PDM-C,

Timeline: Ongoing

How Project Contributes to Mitigation Strategy: Encourage the improvement of datasets within the state. Use state staff and user groups to showcase the capabilities of HAZUS-MH to assist in risk assessment with refined data and encourage the sharing of these datasets. Mitigation Division staff will complete training for HAZUS MH courses offered in house. Additionally, it encourages all communities to attend HAZUS training. Earthquake program manager will lay groundwork for a statewide HAZUS user's group to assist communities in the collection of data and the use of that data to develop more accurate results from the software. Encourage the use of the program beyond current limitations.

4.4 Implementation and Selection of Projects

The state evaluated the action items above on the basis of three major criteria: those that are technically and economically feasible, cost beneficial, and environmentally sound. Additionally, as local plans are approved, their mitigation projects and action items will be incorporated into the state's plan. The State Administrative Plan includes minimum criteria to be considered for the selection of a project for funding. The IDHS Acquisition Policy Memo enumerates the priorities for acquisition. The mitigation section will use these criteria to determine which projects will be brought to the Indiana State Hazard Mitigation Council for consideration.

The ISHMC will take into consideration the FEMA and federal priorities for funding, the priorities of the legislature and the governor, the community with the greatest need (either by risk or economic factors) and which project provides the greatest benefit for the funds expended. The factors that will be considered are:

- Community with severest impact
- Repetitive losses in the project
- Small and Impoverished Communities
- Benefit Cost Ratio (FEMA BCA software will be used to make this determination)
- Technically and/or economically feasible
- Environmentally sound

Cross Reference Of Projects and Strategic Goals

Project Number	Goals
Project 1	1,3,5,8,10,11,12
Project 2	4,7,10,
Project 3	4,7,9,10
Project 4	2,7,9,10,11
Project 5	1,2,7,8,10,11
Project 6	1,2,3,7,9
Project 7	1,2, 6,7,10
Project 8	1,2,3,7,8,9,10,
Project 9	1,2,3,5,9,11
Project 10	12,1,2,3,5
Project 11	12,1,2,3,5
Project 12	1,2,3,4,5
Project 13	1,2,4,7,12
Project 14	1,3,4,5,6,7,8,12
Project 15	1,3,4,5,6,7,8,9,10,11,12
Project 16	3,4,5,12
Project 17	3,4,5,6,7,8,9,12
Project 18	1,3,4,11
Project 19	1,3,4,11
Project 20	1,3,4,11
Project 21	1,3,4,11
Project 22	1,3,5,12,
Project 23	1,2,3,4,7,9,11,
Project 24	5,12,1
Project 25	1,3,5,7,8,12,
Project 26	1,4,8,9,10,11
Project 27	1,4,8,9,10,11
Project 28	6,9,10,7,

Project Number	Goals
Project 29	1,2, 3,4,6,9,10,7,
Project 30	1,2,3,7,
Project 31	1,2,3,7,9
Project 32	11,2,3,7,9,10
Project 33	4,7,9,10
Project 34	5,12,4,1
Project 35	6,7,10,11
Project 36	4,9,8,7,10,11

** Projects are organized by priority ranking. (First project has the highest priority followed by the next project, and so on.)*

The implementation of the projects is prioritized by hazard. As more local plans are received with projects prioritized, the state will create a more formal prioritization based upon local information. However, the state's priorities are subject to change based upon changing situations within the state and the project prioritization shall be adaptable to those changes.